SECOND SERIES. No. 25.

OCTOBER, MDCCCLXVII.

THE ZOOLOGIST:

A Monthly Journal

OF

NATURAL HISTORY,

FOR

RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

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EDWARD NEWMAN.

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E. Newman, 9, Devonshire Street, Bishopsgate.

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

(Continued from Zool. S. S. 884.)

Wild Cat.—The "Mountain Cat" was the emblem or badge of the McIntoshes or Clan Chattan, and its ferocity is testified by their motto, "Touch not the cat *but* the glove," that is, *without* the glove. Ben Jonson introduces it as a beast of evil omen in his 'Masque of Queens':—

"The owl is abroad, the bat, and the toad,
And so is the cat-a-mountain."

The *domestic* species, which we may include under this heading, in defiance of strict nomenclature, has always been associated with the black arts. A cat was a common form for a witch to assume; still oftener it was in this shape that her "familiar impes" appeared, as is attested by the evidence at many of the infamous witch-trials which disgraced the sixteenth and seventeenth centuries. These "impes" were suckled by the witches, or were fed with their blood: thus in Middleton's play of 'The Witch,' a spirit descends in the form of a cat:—

Voices above.—"There's one come down to fetch his dues
A kiss, a coll, a sip of blood!"

According to a German superstition you may obtain money from the devil by tying a black cat in a bag, secured by ninety-nine knots, and selling it as a hare to the fiend at a church-door at midnight; but as soon as the bargain is struck, you must fly with all haste, for if you reach not the shelter of a christian roof ere the fraud be discovered, you are lost for ever. Hence, doubtless, the proverb about "letting the cat out of the bag" (*Simrock*, '*Handbuch der Deutschen Mythologie*,' p. 488).

Wolf.—In the northern myths the wolf was a distinguished personage. The sun and moon were constantly pursued by two wolves, Sköll and Hati, and in the fatal days of the *Ragnarok*, the "twilight of the gods," the fiendwolf Fenris will kill Odin himself and devour the sun, but will be slain in its turn by Vidur. Two wolves, Geri and Freki, are represented as lying at Odin's feet in Walhalla, receiving from him his portion of the boar's flesh, which was the food of the gods (*Simrock*): In mediæval German fable the wolf bears a very bad character, at once malicious, cowardly, and stupid; as such he plays his part in the great

BRITISH MUSEUM

Beast-epic of "Reineke Fuchs," where his greed and credulity constantly render him an easy prey to his rival Reynard. But in Scandinavian story "graa-been" (gray-legs), as he is called, bears a better name; he is grateful for kindness and is gifted with supernatural knowledge (*Dasent*, '*Norse Tales*'). One source of the horror and detestation so generally felt towards this animal was doubtless the ghastly superstition of the were-wolf or loup-garou, widely spread in the middle ages, and tracing back into the mists of antiquity. Generally it was by his own wicked craft that the man assumed the form of the beast, often by means of an enchanted belt of wolfskin; but sometimes he was an innocent person condemned to this transformation by a sorcerer, who struck him with a magic glove of the same material (Zool. S. S. 883). Nor was this change confined to individuals; it was believed to be possessed by whole tribes and nations: thus Herodotus and other ancient writers relate that a Slavonic race, the Neurians, all changed into wolves for a few days every year. It is to this, probably, that Isaac Walton alludes when he bids us "note that Doctor Mer. Casaubon affirms, in his book of credible and incredible things, that one Gaspar Peucerus, a learned physician, tells us of a people that once a year turn wolves, partly in shape, and partly in conditions." In this country the wolf appears to be generally forgotten in popular story. The last Scotch wolf is generally said to have been slain by the famous Cameron of Lochiel in 1680, but Highland tradition relates that the species lingered in the Forest of Tarnaway much later, and the last is said to have been killed by a celebrated deer-stalker, named McQueen, of Pall-a'-chrocain, about the year 1743. (*Stuart*, '*Lays of the Deer Forest*.')

Fox.—According to Simrock the fox was one of the beasts which were sacred to Thor, a dignity which he owed to his colour being similar to the hue of the Thunderer's beard. He has always been a favourite subject of traditionary lore; from the time of Æsop to the present day he has been the hero of a hundred stories, in which, hero-like, he is always successful. To enumerate many of these legends would be very tedious, but I may mention, as an example, the Norse explanation of the white "tag" of his brush. Reynard persuaded an old woman to engage him as her herdsman; of course he made short work of his charge, and finished off with a raid on her dairy; whereupon the dame, in her wrath, threw after him what little cream he had left, and some of it lighting on his brush he has borne a white tip ever since (*Dasent*). But by far the most important of all these tales, or collections of tales, is the great German Beast epic (as it has been well called) of "Reineke Fuchs," which amused knight and dame in the middle ages, and in which Reynard's unscrupulous cunning and knowledge of the world overcome all opposition, and deliver him from the most desperate and well-merited dangers. The Scotch name for the fox is "the tod" ("*Islandic, toa, tove, vulpes,*" Jamieson), his nickname, answering to Reynard, being "Tod-Lowrie," the derivation of which is somewhat obscure. A curious piece of folk-lore, common in Germany and Scotland, relates that when the fox is annoyed with vermin he takes a bunch of wool or moss in his mouth, and then slowly backs into a stream till his snout only is above the surface, thus driving the fleas, &c., into his trap, which is then quickly dropped and carried away by the current. Allan Ramsay thus alludes to this story in his pastoral of 'The Gentle Shepherd':—

"As fast as fleas skip to the tate of woo',
Whilk slee Tod-Lowrie hauds withoot his mou',
When he to droon them, and his hips to cool,
In simmer days slides backwards in a pool."

Seals and Cetacea.—Chambers, in his 'Domestic Annals of Scotland,' quotes various old authors and journalists who record the appearance on our coasts of sea monsters, which were believed to foretell calamity to the nation, and which were probably rare species of seals and cetaceans. For example, Hector Boece informs us that in 1510 a "terrible beast of the bigness of a greyhound and footed like a gander" invaded one of the Argyleshire lochs, and, rising out of the water, "did overthrow huge oaks with his tail, and therewith killed outright three men that hunted him:" he adds that it was believed that "this beast is never seen but against some great trouble and mischief to come upon the realm of Scotland." Hollingshed, in his 'Chronicle' (1577), speaks of "sundry fishes of monstrous shape, *with cowls over their heads like unto monks*, and in the rest resembling the body of man," which were seen in the Firth of Forth before the advent of pestilence and murrain. This description reminds one of the crested seal (*Stemmatopus cristatus*) of Greenland, which, however, has not been recorded as visiting our coasts. It has been often suggested that the very human appearance of some of the marine mammalia may have been the origin of the omnipresent belief in mermaids. This theory is certainly strongly confirmed by the following facts, for which I am again indebted to Mr. Chambers's valuable work. The writer of an 'Account of Buchan,' which is believed to have been written about 1680, refers to the occurrence of a mermaiden on the Scotch coast, in June, 1635. Fortunately an account of this mermaid has been preserved by Spalding, who describes it as follows:—"There was seen in the water of Don a monster-like beast, having the head like to one great mastiff-dog or swine, and hands, arms and paps (breasts) like to a man. The paps seemed to be white. It had hair on the head; and the hind parts, seen sometimes above the water, seemed clubbish, short-legged and short-footed, with one tail." (It escaped all the efforts made to capture it.) Here, then, we have a distinct instance of the transformation of a marine quadruped into a mermaiden; what was only a "monster-like beast" in 1635 had been developed into a supernatural creature by 1680. The description of the animal is also interesting in itself; it seems possible that it may have been some species of seal, but several features, particularly the mention of human-like breasts, seem to point to the manatee (*Manatus borealis*), which has not since been recorded as visiting our shores, although its dead body has been thrown up by the tide in two instances (*Bell*, *Brit. Quad.*, p. 525). So late as 1817, when a walrus was killed on one of the Hebrides, not a little superstitious feeling and even fear was evinced by the ignorant islanders (*Macgillivray*, '*Naturalist's Library*,' xvii.)

Narwhal.—The tusk of the narwhal was commonly sold in the middle-ages as that of the fabulous unicorn, and was believed to have the power of neutralizing and detecting poisons: for this purpose it was commonly carved into cups; the horn of the rhinoceros was also often used.

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,
September, 1867.

(To be continued.)

A Day among the Bird-breeders at the Point of Air.

By HENRY ECROYD SMITH, Esq.*

ACCOMPANIED by two brother-naturalists, the writer lately accomplished a long-desired examination of the angular and low-lying district situate southward of the mouth of the River Dee, and stretching in the direction of Rhyl, the object being to ascertain, if possible, what sea or other birds continued to breed in this little-visited locality. Authentic reports, several of which are adduced by Mr. J. F. Brockholes, in his paper "On the Birds which Nest in the District" (read before the Lit. and Phil. Soc., October 15th, 1860), testify to the former incubation upon the Cheshire sea-beach and lower shore of the Dee on this side, of the ringed dotterel, oyster-catcher, common tern, shieldrake and rock dove. These species being supposed to have been almost if not wholly frightened from breeding with us by the increase of population, influx of visitors to Hoylake and the Leasowe Embankment, and last, though not least, the incessant popping of the guns of incipient riflemen—the more quiet and less accessible angle of Flintshire comprising the Point of Air seemed to offer facilities for illustration of ornithological life as existing here half a century ago. The tract in question lies considerably to the right of the railway line to Holyhead, which winds under the high ground and through the estate of Sir Piers Mostyn, whose residence, Talacre Hall, although surrounded by fine woods, is sufficiently elevated to command the whole sweep of the country shoreward, which, with the exception of an occasional reach of sand-hills, forms a dead level only varied by a few farm-houses and trees.

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* Reprinted from the 'Liverpool Naturalists' Journal' for August, 1866.

Having overnight secured comfortable lodgings and an informing chat with the head-keeper at the "Talacre Arms," a quiet hostelry near the Hall, early morning found us wending shoreward, furnished with a good foundationary breakfast of true farmer's fare, whilst to recruit the animal waste in the hot sunshine upon the dry and thirsty land about to be traversed, a good supply of new milk was stored in a receptacle, which, when emptied, could be useful in protecting "treasure trove." Our steps were primarily directed to the right, passing down a lane to a small wharf at the end of a straight bank or spit never wholly covered by the tide, but the wheel-marks upon its little beach showed occasional but yet sufficient use to disturb the birds, and nothing was found. A narrow but deep channel separated the extremity of this small promontory from a much more likely sand-bank lying directly opposite, or at right angles and insulated; the water was ebbing, and might by and by have been easily forded, but for this we could not spare time, or probably a few nestings of the oystercatcher, ringed dotterell or one of the terns might have been noticed. In default of this, the most likely locality, as previously descried from the high ground, was a much larger bank having a level or partially depressed top, whence numerous bird-voices had already reached us, but to gain which a long *détour* was necessary round a level marsh traversed by a deep winding gut. This difficulty at length surmounted, we quietly advanced up the broad shaley bank, every now and then disturbing an oystercatcher or ringed dotterel. A few hundred yards in advance, and upon a reach of bare muddy shore, appeared a multitude of small stakes with bent heads, but a glass being brought to bear upon these resolved them apparently into young oystercatchers, *i.e.* birds of last season, all precisely in the same attitude, and mostly immovable. It was evident that this spot, as indeed might well be expected from its position off the angle of the shore (and directly opposite Hilbre Island), is much frequented by numerous species of sea-fowl, perhaps too much visited for free incubation, as, though we were satisfied the old birds we had disturbed had eggs among the bank of shingle, the acreage was too great to be looked closely over, and we failed to find any eggs.

Somewhat disappointed with our lack of success hitherto, and seeing neither terns nor other likely banks ahead, we did not pursue the coast line much further, but after looking into several openings among the now increasing sand-hills, passed the lighthouse, and struck off from the beach in search of the breeding-places of the shieldrakes reported to us. A covey of young partridges were first stumbled upon in some thick bent grass, and then a nest of young pheasants, an odd egg of a partridge occurring at no great distance upon the bare sand. A little farther on a stock dove emerged from the mouth of a rabbit-burrow, in a manner suggesting occupation for breeding purposes, as was shortly proved through the extraction of an egg from a position some three feet down the aperture. The find was all the more welcome being unexpected, for few ornithological writers mention the breeding of this species in burrows: pollard hornbeams would seem, from these authorities, to be its favourite resort, but in the absence of such in the northern counties, burrows seem to be utilized, as in the Norfolk warrens, and upon the ranges of sand-hills common to the seaboard of sandstone districts. Bewick locates this bird's nest in hollows of decayed trees, assigning it two broods in the year, a limit probably often overstepped, especially when the first eggs are taken, at least such is the opinion of the writer in absence of ascertained fact. A second nesting was subsequently found, containing two eggs placed upon a few roots of grass: doubtless many others were to be procured with time and patient grubbing, although "early in April" is the season Mr. Hewitson published as that of incubation, whilst here we were obtaining none but fresh eggs in the first week in June! To be sure it might in each case be the second "clutch," but on the other hand, not a single young bird was noticed by us among the many started from out of the holes and thick bent grass as we proceeded. The egg of the stock dove is smaller than that of the average of the common ring dove or wood pigeon, and by no means of so pure a white, being of a pale cream colour.

By this time our proceedings had very naturally attracted the profound attention of the warrener, who had been taking sight of us through his glass, and now approached in a somewhat querulous mood: he was, however, soon mollified, and finding we were quite scientifically bent, and not mere marauders, supplied us with all the information in his power about the habits of the stock doves and shieldrakes. The latter species (Anas tadorna) was likewise breeding around us, but any casual visitor would have a fine exercise of patient endurance ere he could unassistedly find a single nest, it being invariably placed considerably within the aperture,—in fact, from six to eight or even nine feet from the orifice,—and the birds never passing in or out during the day. The warrener kindly presented us with a few eggs, of which he had relieved a plundering boy on the previous evening, and which proved to be fine examples, or about the size of a double-yelked duck's or turkey's egg, and quite fresh. Being very desirous, however, of seeing or rather finding a nest, as a matter of favour the warrener allowed his sons to show us one, and its original owners having been shot by the young heir of the estate on the previous day, we had no compunctions as to securing the eggs, *if to be found.* Borrowing a "digger," or long-handled tool with a narrow blade, from the warrener, the writer set vigorously to work, having taken the primary direction of the burrow with his walking-stick, delving into the subterraneous chamber; but it was only after a third hole had been sunk into one of the already numerous ramifications of the burrow, that, after no inconsiderable groping in the loosened sand, the eggs were at length felt, eleven in number, rather hard-sitten, and quite cold. As usual at this stage of incubation some down from the breast of the hen bird was found partially enveloping them, but as no roots of grass were felt, the eggs had apparently been *laid* in the bare sand. The complement we were told, has been found to amount to fourteen, although eleven or twelve proved the most frequent number of eggs of this bird, which is said by Bewick to lay twelve to sixteen eggs on Holy Island, these requiring some thirty days' incubation.

The afternoon was fast wearing on, and having repeatedly heard of a high and partially insulated bank off the coast near Prestatyn, one likely to prove a good breeding-place, we were necessitated to hasten onward, having to regain our last night's quarters previously to catching the evening train for Liverpool at Mostyn. On the way several more stock doves were started, in all probability from nests, but no longer having time to ascertain, we diverged to the shore, thence wading to the northern extremity of an extensive bank of sand and shingle, the surface being mostly covered by the latter. Here a pair or two of oystercatchers were at once disturbed, and may have been breeding; but our attention was quickly absorbed by the shrill cries of terns, evidencing an intrusion upon one of their places of incubation. The birds proved to be of one species only, *viz.* Sterna minuta, or the lesser tern, a bird by no means common upon the English coasts, and much scarcer upon the western than the eastern; indeed its only recorded breeding-place upon this side of the island was one upon the coast of Cumberland, until the writer's discovery of its incubation off the shore at the north-eastern entrance of the Menai Straits last year (Zool. S. S. 100): in that case, as in the present, the bank or sand-spit is chiefly isolated from the main, running parallel to it, but only joining at one end, and rarely if ever completely submerged, even at highest tides. Mr. Brockholes certainly mentions a report which had reached him of the common tern, *or this species*, having been known to breed at Hoylake, and states the latter to be not infrequent between the Point of Air and Rhyl; but its breeding here, though probably known to some local gentry, has not hitherto been recorded, so far as the writer is aware. A second station is now verified, and possibly other favoured haunts of this rare and pretty sea-swallow may be found along the coast of Wales. Its smaller size renders it easily distinguishable from the arctic and common terns, and the eggs are not only considerably less than those of the species named, but are of a much lighter colour both of ground and markings, the latter being more dots or spots than blotches, whilst the whole egg presents to the eye so identically the shades of colouring of the surrounding sand and pebbles, that the most persevering scrutiny is requisite to detect the nestings. No real *nest* is made, but a mere scooping about six inches in diameter, where the shingle is not very large, is the sole receptacle. Sometimes it is very partially lined by a few bits of shell, as a slight protection to the eggs from excess of moisture. Of about half a dozen nestings procured by us and a couple of boys bribed to assist, three contained as many eggs, and Messrs. Yarrell, Meyer, Doubleday and Adams assert this number to be the complement; my Carnarvonshire find, however, included several sets of four; consequently, unless two females had laid in one nest in each instance (a most unlikely supposition), the latter must be held as the actual complement of the eggs of this species, which, by the by, keeps much more apart from its fellows in the nesting than is the case with the common, Sandwich, and perhaps other terns. Two nestings of the ringed dotterel were likewise discovered upon this bank, and as both species were also found breeding near, on the Carnarvonshire station before mentioned, it may be supposed that no antagonism exists between them, but the lesser tern probably keeps at a distance from larger birds as the oystercatcher, during incubation.

To sum up shortly the result of the day's most interesting operations, the anticipated common and arctic terns were wholly unseen,—oystercatchers seen, and presumed to breed sparingly,—ringed dotterels and lesser terns incubating more numerously,—all on banks of the sea-beach, the shieldrakes and stock doves breeding freely among the sand-hills inland. In concluding, the writer may refer to a paper of his "On the Archæology and Natural History of the Mersey District for the past Three Years, 1863—65," for further and unrecorded notices of the breeding in our own neighbourhood of many of the species above mentioned; it was read before a meeting of the Historic Society of Lancashire and Cheshire on the 3rd of May last.

H. ECROYD SMITH.

NOTICES OF NEW BOOKS.

'*Pigeons, their Structure, Habits and Varieties.*' By W. B. TEGETMEIER, F.Z.S. With Coloured Illustrations of the Varieties by HARRISON WEIR. London: Routledge. 1867.

"FIRST, positively, a pigeon is a pigeon, and a pullet is a pullet; and second, negatively, a pigeon is not a pullet, and a pullet is not a pigeon." I am not inclined to dispute these somewhat dogmatic definitions, since they certainly possess the racy flavour of truthfulness, although there is perhaps not much to be said as to their depth or originality: moreover, something might be added without running the risk of being charged with obscuring and overwhelming the subject with a superfluous display of erudition. The sacred volume supplies a first but valuable addition to this elementary definition of a pigeon, for it teaches us that the *peristera* of the Greeks, translated "turtle dove," was the parent, and *peristerion*, *peristeria*, *peristeridius* or *peristeridia*, translated "young pigeon," always the young. The "turtle dove" or "pigeon" is probably, I think it might be said certainly, the first bird clearly and definitely mentioned in history, whether sacred or profane, and one feels a pleasure that instead of puzzling over their differentiation, we may confidently accept these terms as synonymous, the only difference being in the age of the birds to which allusion is made.* How very frequently we find the somewhat tautological expletive "young" applied to lambs, kids, &c.: it seems quite unnecessary, inasmuch as we consider all lambs, all kids, to be "young," sheep and goats being the adults: and so with pigeons; all pigeons to which allusion is made in Scripture are young birds, an assertion which is far removed from all chance of disproof, because in our authorized version the word "pigeon" nowhere occurs by itself; there is not a single instance in which it is used unaccompanied by the expletive "young." Hederick has taken especial pains to explain this: *pullus columbinus*, *parvula columba*, *pipio*, are given as translations of the Greek words already cited, which have also their exact equivalent in the Hebrew *gozal*, and according to our authorized version in "young pigeons." My readers are especially referred to the context in Genesis xv. 9; Leviticus i. 14, v. 7, xii. 6 and 8, xiv. 22 and 30, xv. 29; and Numbers vi. 10: these are all the instances my illustrious ancestor, the author of our Concordance, has given of the word "pigeon" in the Old Testament, and I believe there is but one in the New (Luke ii. 24), and here also the word "young" appears as explanatory.

A second position appears equally clear, namely, that the "turtle dove" of Scripture was domesticated, and was only known in a state of domestication; the sacrifices were of domesticated animals, bulls, rams, goats, turtle doves and young pigeons: wild animals, *feræ naturâ*, are rarely mentioned as sacrifices; and hence we derive the fact that all these animals have been domesticated from the earliest historic period; indeed it will be difficult to show that our domesticated animals, or any of them, ever enjoyed a state of perfect or natural freedom, except when they have escaped from our care and set up for themselves a kind of independent existence; such, for instance, as that of the horses in South America, so obviously the descendants of Spanish runaways. It will abundantly repay the little trouble such an investigation may require, to refer to the mention of all these sacrifices, beginning with that of Abram (Genesis xv. 9), "an heifer of three years old, and a she goat of three years old, and a ram of three years old, and a turtle dove and a young pigeon." These were all domestics; they were to be taken, as it were, out of the farm-yard —creatures always at hand; and they are clearly distinguished from the *wild* birds, the *fowls* which came down upon the carcases, and which Abram drove away. Newman, and his able follower Cruden, both give their opinion, or rather their assertion, that the dove, or turtle, or turtle dove of Scripture was "a tame bird." Then we find a bit of Ornithology touching on the question in Jeremiah xlviii. 28, which beautifully connects the turtle dove of Scripture with the rock dove, Columba livia of our systems: "O ye that dwell in Moab, leave the cities and dwell in the rock; and be like the dove that maketh her nest in the side of the hole's mouth." I am well aware how dangerous it is to give our own scientific interpretations to Scripture Natural History, but here we have the turtle dove of Scripture unmistakably identified with Columba livia, and its mode of nesting accurately described.

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* It may be observed that in nearly all commentaries on the Bible the inquirer is led astray by being told that the "dove" or "turtle dove" is Columba risoria.

Throughout the entire geographical area over which Scripture history extends the domestic pigeon may be literally said to swarm at the present day, and there is not a single attribute given to it in the sacred volume but is equally applicable now; a period of three thousand years has wrought no change in the disposition, the nature or the domestic economy of the dove: they are and always were loving and harmless, and are perfect patterns of conjugal fidelity: they fly as no other birds fly in the fulness of joy; not in search of food, not to escape danger, not in pursuit of the other sex, but solely for recreation, solely in the exuberance of animal spirits, solely to enjoy the exhilarating effects of the air of heaven. Not only in Scripture history, but in *all* history, in all literature, the dove or pigeon has been the admiration of the naturalist, the theme of the poet, the endeared companion of the gentle and the guileless among men.

Thus introduced by the highest authority, and descending to us from the remotest antiquity, it is impossible that the breeding of pigeons should be otherwise than an object of the greatest interest, and brought forward as it is now by Mr. Tegetmeier, who is justly regarded as a referee on all questions connected with the dovecot, we are induced to look forward to a work of more than ordinary value and completeness. This being the case, we have turned over the pages of Mr. Tegetmeier's work with considerable disappointment at finding so large a portion borrowed from others, and so small a portion purely original. In giving the long extracts to which I refer, Mr. Tegetmeier has used the most perfect good faith; not only does he acknowledge to the uttermost, every sentence and every line extracted from other sources, but the extracts are selected with considerable judgment, and have a bearing more or less immediate on the subject under discussion. But we all know, or ought to know, the views of Huxley, Darwin, Macgillivray and others who have written expressly on these subjects, and we all should prefer an exposition of Mr. Tegetmeier's own views to those of naturalists whose contributions to Science have become trite and familiar, not to say, in some of the instances before us, obsolete. It is not, however, with any view of criticising the efforts of a fellow-labourer in the field of Natural History, but solely to bring his labours more immediately under the notice of naturalists, that this pigeon-book has been attentively read, and the following selections made from its pages: and *first* let me invite attention to certain peculiarities physiological and alimentary in the early life of a pigeon. To these peculiarities Mr. Tegetmeier thus alludes:—

"The structure and habits of the family or group of pigeons are so peculiar and so strikingly distinct from those of other birds, that they demand special attention. The pigeons were formerly classed by the majority of naturalists along with the gallinaceous birds, the true poultry, and by others with the passerine or sparrow-like birds; but more accurate observation has rendered evident the fact that they form a perfectly distinct family, distinguished from all other birds by the singular manner in which the young are nourished. Unlike the true Gallinaceæ—which are hatched in a perfect state and are able to follow the parent hen within a few hours after birth—the young pigeons are born in a most immature and helpless condition, and are fed with a curdy secretion, produced in the crops of the parents, the 'soft food' of the pigeon fancier. This is expressly produced at the period of hatching, for the support of the callow young."—p. 3.

"This secretion of 'soft food' as it is termed by pigeon fanciers, cannot be delayed, consequently if the young do not emerge from the eggs on the eighteenth day, the old birds desert the nest, refusing to sit longer on the sterile eggs. The production of the soft food, however, may be hastened a day or two. If a pair of chipped or hatching eggs are put under a pair of birds that have been sitting for sixteen days, their presence will always stimulate the secretion of the soft food, and the young will be duly nourished. The formation of this curdy secretion —true pigeon's milk—is a very remarkable fact; it seems determined altogether by the process of sitting: it is produced equally in both parents, though the hen sits for about twenty hours, and the cock usually for only four, namely, from about ten or eleven in the morning to two or three in the afternoon.

"To receive this nourishment the young thrusts its beak into the side of the mouth of the old bird, in such a position that the soft food which is disgorged from the crop of the parent, with a sort of convulsive shudder, is received into the lower mandible or jaw which is widely expanded to receive it. It is singular that so simple an action as this should have been so greatly misrepresented as it has been by many writers. Even so good an observer as Yarrell described in his "British Birds" the old pigeons as feeding the young by placing their beaks in the mouths of the little ones, and overlooked altogether the beautiful adaptation of the broad spoon-shaped lower jaw to the habits of the animals.

"As the young advance, the soft food lessens in quantity, and the grain and seeds that constitute the nourishment of the parents become mingled with it; and when about eight or ten days old the young are fed with disgorged grains and seeds only, until such time as they are able to fly and seek their own nourishment."—p. 10.

I confess to a craving for more information than these passages convey: my readers will observe that the "pigeon's milk" is distinctly spoken of as a "secretion," that it is "produced in the crops of the parents," and that as the young advance it "lessens in quantity." Now what is this "pigeon's milk"? the term is "as old as the hills," but the interpretation is still lacking: a secretion is distinctly understood as a fluid (or perhaps solid) evolved from that which secretes; thus the milk of sucklers is with great propriety called a "secretion" from the blood, and there are other animal secretions equally familiar, but is pigeon's milk a secretion from the blood? and if so how can it be secreted in the crop, which is the receptacle of food? As I understand secretion, it cannot be applied to macerated food. That young pigeons receive nutriment in the manner described by

Mr. Tegetmeier is, I think, fairly established, but what is that nutriment? Is it anything distinct from the food of the parent softened and prepared by a digestive process of the parent's stomach? The more thought I give to this interesting question, the more decidedly does this appear the natural and truthful solution: and here it is right —nay, it is absolutely necessary—to add that the truly great, and generally philosophic, Hunter, evinces a confusion of ideas on this interesting question exactly parallel to that exhibited by Mr. Tegetmeier in the paragraphs I have cited. After referring to the power possessed by sucklers of supplying immediately from their own bodies the nourishment proper for their offspring, Hunter goes on to say that "all birds of the dove kind are endowed with a similar power." This he evidently considers the equivalent of milk, and he thus describes its production:—"During incubation the coats of the crop in the pigeon are gradually enlarged and thickened, like what happens to the udder of females in the class Mammalia in the term of gestation. On comparing the state of the crop, when the bird is not sitting, with its appearance during incubation, the difference is very remarkable. In the first case, it is thin and membranous; but by the time the young are about to be hatched, the whole, except what lies in the trachea, becomes thicker, and takes on a glandular appearance, having its internal surface very irregular. It it likewise evidently more vascular than in its former state, that it may convey a quantity of blood sufficient for the secretion of the substance which is to nourish the young for some days after they are hatched."

From this passage we are certainly led to infer that the "coats of the crop" secrete from the blood the substance which is to nourish the young; but Hunter goes on to say, "Besides the dove kind, I have some reason to suppose parrots to be endowed with the same faculty, as they have the power of throwing out the contents of the crop and feeding one another. I have seen the cock parroquet regularly feed the hen, by first filling his own crop and then supplying her from his beak: parrots, macaws, cockatoos, &c., may likewise be observed to have the action of throwing up the food, and often do it." Surely this conveys no idea of secreting food from the blood: if doves and parrots are "endowed with the *same* faculty," and if that faculty is "filling their own crops," "throwing up the food," and with this "thrown-up food" "feeding one another," we have a very different phenomenon to the lactation of Mammalia.

Mr. Tegetmeier has some very sensible observations on the fitness of animals for domestication, which, however opposed to the patriotic attempts of acclimatizing societies both at home and abroad, have the insuperable recommendation of being strictly truthful.

"The rock dove is one of those animals that is capable of being domesticated by man. The opinion that the majority of animals could be domesticated is one that is very prevalent, but has no foundation whatever in fact. For example, if a pair of eggs from the nest of a wild blue rock are placed under a domestic pigeon that has been sitting the same length of time as the birds from which the eggs were taken, the latter will produce a pair of blue rocks, that will become domesticated, being attached to their *domus*, or home.

"On the other hand, if a pair of eggs from the stock dove (*Columba œnas*), or the ring dove (*C. palumbus*), be treated in a precisely similar manner, the birds so produced will not become domesticated. There is precisely the same difference between the fowl and the pheasant. The former is so attached to its home that the return of the brood at night has given rise to the proverb that 'Curses like chickens, always come home to roost.' The pheasants, on the other hand, may have been tame bred for twenty generations, and yet are no nearer true domestication than their wild progenitors."—p. 25.

The subject of variation is one on which Mr. Tegetmeier is particularly at home, and one he might have amplified with great advantage to his readers.

"It is well known that all animals, even those living in perfectly natural conditions, are subject to certain variations, such as those of colour, form, size, &c. Thus we have not unfrequent examples of white moles, blackbirds, and other animals; and changes of form and size are equally common.

"In birds as extensively distributed as the rock dove (*C. livia*) slight local or geographical variations constantly occur. Thus in India all the wild blue rocks have ash-coloured feathers over the rump, whereas the European birds have, as is well known, white rumps; and, as is well known to most fanciers, this white rump is one of the most difficult points to 'breed out' in any of our blue varieties; whereas the blue breeds derived from the Indian birds have, as might be expected, blue rumps."—p. 25.

"Variations, however, of a much more striking character, not unfrequently occur in single cases of wild birds; but when they take place in a state of nature, they are not very likely to be propagated, inasmuch as a wild bird with any variation of plumage or form, will almost of necessity mate with one of the ordinary character, the offspring again do the same, so that in a very few generations all trace of any singular variation is apt to be lost.

"In a state of domesticity, however, any singular variation would be noticed, and by careful selection of breeding stock, would be perpetuated, and even increased. In this manner all the different breeds have been produced. Some Indian fanciers in distant ages (for pigeons have been kept as domestic pets many hundreds of years in India), observing that certain pigeons were produced with extra feathers in the tails, mated them together, and again selecting those of the offspring that showed the desired characters, succeeded in eventually creating the fantail. Some short time since, a pigeon was forwarded to the writer with a second or supplementary tail consisting of three quill-feathers growing out between the shoulders. Unfortunately, the bird had been shot, otherwise there would have been but little difficulty in establishing a race of two-tailed pigeons from this singular variation. It is needless to go through all the varieties in succession, for the same principle applies to the production of each. The recurved feathers of the jacobin and other breeds, the long beak of the carrier, the length of plumage and limb in the pouter, &c., &c., all owe their origin to natural variations which have been perpetuated and intensified by the careful selection exercised by the breeders through many successive generations."—p. 27.

We now arrive at the subject on which the author is particularly strong, the treatment of pigeons in a state of domestication, and we heartily recommend his instruction to all who keep pigeons: light, ventilation, cleanliness and security from cats, are desiderata very properly introduced to the attention of the pigeon-breeder.

"It seldom occurs that a room is specially built for pigeons; but where there is any choice of locality, it is best to select one that is open to the south, so as to get a warm aspect in winter and early spring, as that tends to encourage early breeding, and is more healthy for birds than a room exposed to the cold blasts from the north. It is not uncommon to see many pigeon rooms or lofts that are very deficient in light: this is particularly objectionable. A dark room is not as healthy for the birds, especially if they are not suffered to fly out; and it can hardly be as well cleaned as one that is well lighted. Moreover the owner is not able to see the birds conveniently, or to examine the nests when required.

"Another point of the highest importance to the health of the birds is the establishment of a good system of ventilation. Nine-tenths of the diseases that afflict our high-bred pigeons arise from their being crowded together in dark, dirty, ill-ventilated lofts. There is no necessity for an absolute draught of wind to be allowed to rush through the loft, but full provision must be made for ventilation if healthy birds are desired.

"Cleanliness in the pigeon loft is no less essential than ventilation, particularly if many birds are kept and they are not flown. The loft should be cleared out daily. Under no circumstances should the dung be suffered to accumulate until it becomes offensive to the smell.

"Fresh gravel, sand or dry earth should be thickly strewn on the floor every day, and the dung that accumulates in the nest-boxes and around the nest pans, not suffered to collect so as to be offensive. The most convenient instrument for cleansing the shelves will be found to be a small hoe fixed on a short handle about eight or ten inches in length.

"Pigeons are often kept in lofts, or in the spaces under the tiles or slates of a house. In this case the rafters should be properly boarded over, otherwise the dung which falls upon the laths is with difficulty removed, and there is the still more serious evil that the owner's foot may occasionally slip off the rafter and find its way through the ceiling into the room below.

"It is requisite that the loft or room devoted to pigeons should be proof against the ingress of cats, rats and other vermin. Strange cats are most destructive to pigeons. When a cat has once tasted pigeon she seems to prefer it to all other food. Sometimes the access of a cat can hardly be prevented, and it may be necessary to get rid of the intruder to prevent the entire loss of the stock. A box trap baited with a pigeon's head will be found to be invariably successful in the capture; after which pussy may be shaken into a bag, which may then be placed in one pailful of water and pressed down with another."—p. 40.

"The loft should if practicable admit of being divided, so as to enable the separation of the birds during winter to be readily accomplished. With the more common hardy breeds, this is not absolutely requisite, as in a well-sheltered room they will go on breeding successfully nine or ten months out of the twelve; but with the more artificial and delicate high-class varieties, it is useless to attempt to rear the young during the colder months of the year, and therefore it is desirable to separate the sexes after moulting time, or in the autumn. This is most readily done by dividing the loft. If the birds are flown, the division should be so arranged that the cocks and hens can be let out separately, and they may be given their liberty on alternate days."—p. 41.

"Another appliance very necessary to the health and comfort of the birds must not be overlooked, that is the washing pan. Pigeons are not dusting-birds, like fowls, but, on the contrary, cleanse themselves by washing: they are fond of lying down in shallow pools of water, expanding their wings, loosening the arrangement of the feathers, and then, when the plumage is well nigh saturated, they give a vigorous shake, and the water at once becomes white and milky with the scurf thrown from off from the skin of the bird.

"When kept in aviaries or in lofts it is cruel to deprive them of this pleasure so conducive to their well-doing; and therefore shallow pans of water should be provided. In our own lofts we use milk-pans for the purpose; but any broad, open vessels capable of holding two or three inches depth of water will answer equally well."—p. 45.

In his descriptions of varieties Mr. Tegetmeier has reversed the order that a naturalist would have preferred, that of tracing the pigeon from its wild condition to its most distorted, extreme, and unnatural form and colour: he explains that his departure from the course is a concession to the pigeon-fanciers.

"In treating of the different varieties of breeds of domestic pigeons, either one of two methods might be pursued. A naturalist would regard it as most desirable to commence with the wild species, and trace the different breeds from it; taking in the first instance those that showed the least departure from their wild progenitors. Such a method of procedure would, however, not be acceptable to the fancier, who regards the natural bird with slight esteem, and values his specimens precisely in proportion as they depart from the original standard.

"As this work is on the domesticated pigeons, and is written for the use of the fancier rather than for that of the naturalist, it is more desirable to commence with the most highly valued varieties; and therefore the so-called high-class birds, the pouters, carriers and short-faced tumblers, will first engage our attention, as these breeds with some few others, such as barbs and small African owls, offer the strongest instances of departure, at least in structural peculiarities, from the formation of the original stock."—p. 49.

With the subject of matching colours, Mr. Tegetmeier seems to be very familiar: before one of so much experience, *pileum detraho*, I can do nothing more than reproduce his instructions, in perfect faith that they are all that can be desired.

"With regard to the matching of the particular colours, first of blue-pied: a pouter of this colour should not be matched with a black-pied, as although in many cases well-marked birds of either colour are produced, the general result is to obtain dark birds, with chequered wings and black bars, which are neither elegant nor valuable. Blues may be matched with reds, if no better match offers; and we have seen some very good-coloured birds the produce of this cross. Nothing can be better than to cross a blue cock with a large long-limbed mealy hen; the produce will in almost all cases be either blue or mealy. Blue-pied and white are not desirable to match, as very white-pied birds, or white-splashed or speckled with other colours, would most probably result.

"Black-pied may be matched with red-pied or mealy with advantage; but white should be avoided, as splashed offspring would almost certainly be produced.

"Red-pied may also be matched with yellow-pied, when good yellow or red birds will be produced; red-pied and mealy may also be matched, but with some risk to the bright red so much prized in the best-coloured birds.

"Yellow-pied may also be matched with mealy with advantage.

"White pouters should have a white beak, a dark eye and a plumage of immaculate purity, in addition to all the other properties of the breed. The fear of the hereditary transmission of a few dark feathers has made many fanciers dread any intermixture of other blood with their white strain; but we can speak from long experience in breeding this variety, and can state that some of the best whites we ever reared were obtained from a cock with a dark splashed tail and a mealy hen, and that the progeny of these birds, when crossed with other whites, bred birds free from stain.

"White, in the language of the fanciers is a "strong" colour, that is to say it is one that reproduces itself with great force, and really overpowers other colours existing in the bird to which it is matched."—p. 63.

We have a chapter especially devoted to pouters, and are taught with evident earnestness how these extraordinary birds ought to be managed: how often have I gazed on these strutting deformities, and amused myself with speculating whether it was more probable they would rise up like balloons or topple over on their exaggerated stomachs!

"We now have to consider the arrangements most desirable for the accommodation of a stud of pouters. The size and peculiar habits of these birds render necessary a very considerable modification of the arrangements that are usually made for the other varieties of domestic pigeons. Their height necessitates pens of much greater altitude, their length of feather requires a large increase of size in their nesting-places and cages, and the desirability of getting them into show renders it almost imperative for the pouter fancier to have such an arrangement of his loft as will admit of his penning the whole of his birds separately during the winter months, that is from immediately after the moulting season until they are matched up anew in the spring. First-class pouters cannot be advantageously kept, either in dovecotes, pigeon-houses or lofts, such as may be devoted without any inconvenience to many of the other varieties; and except in country districts where they are secure from molestation, they cannot be safely flown at large, as they are so tame that they may be frequently taken up in the hand, and when they are strutting about with inflated crops they offer themselves as easy victims to predatory cats. Hence, in towns, pouters are always kept in rooms or enclosed aviaries, and these are fitted up with pens for the nesting and confinement of the birds."—p. 64.

It seems that a Mr. Samuel Bult rules or has ruled supreme in the management of pouters, and that Mr. Tegetmeier has enjoyed the advantage of visiting his establishment, an advantage which he fully appreciates and gracefully acknowledges.

"Those fanciers who like ourselves have had the privilege of seeing this celebrated stud at home, cannot fail to have been struck with the admirable manner in which the birds were cared for. A visitor was never allowed to see them before the houses had been thoroughly cleaned out for the day, the floors freshly swept and gravelled and the pens strewed with sawdust. If the visit was early in the day, a glass of wine and a biscuit served to beguile the time until 'William' announced the fact that the birds were ready for inspection: on stepping out on to the lawn, at the back of the house, the visitor saw a walled garden of moderate size; at the opposite sides of the lawn were two summer-houses, which were devoted to the pouters. In the centre of the lawn was the stump of a low tree, the branches of which had been sawn off, leaving the truncated ends, each of which supported a small platform on which the birds could fly. On the lawn itself were the large shallow vessels in which they bathe. The houses contained the pens, each one of which was about three feet long by eighteen inches in height. The fronts of the pens were made of perpendicular wires. The door formed the middle third, the wires at the two ends being fixtures. At the two extremities of the pens were placed large flat flower-pot saucers, serving as nest pans, and often a pair of young birds were to be seen at one end, whilst one of the young birds was sitting on a pair of eggs at the other. Each pen was furnished with two small pans, one for food, the other for water: these were never empty."—p. 66.

"Those who like ourselves have had the pleasure of witnessing the scene from Mr. Bult's house, will acknowledge that his arrangements were the very perfection of pigeon-keeping. The extreme cleanliness of the houses and pens, the beauty of the birds, now prancing proudly on the lawn, and then, as it were in the very exuberance of their animal spirits, starting off on a short flight, with loud-flapping wings and inflated crops, and the pleasing variety occasioned by the different colours of the birds, combined to render the picture most attractive." —p. 67.

I conclude my quotations with a few instructions on the method of feeding young pigeons by hand, the minuteness of which will convince every one of the attention which Mr. Tegetmeier has paid to every branch of the subject.

"The method of feeding by hand usually adopted is to cram the bird with soaked beans or peas. We prefer the former, as being larger and not requiring so many to fill the crop. The bird to be fed should be lifted from the nest, or the nest-pan may be taken on the knees as the feeder sits on a low chair; when placing the left hand over the bird, he holds the head between the finger and thumb, and taking up the beans (which should be conveniently placed) with the right hand, he opens the beak and slips them rapidly, one after another, down the throat of the young; taking care that they pass on into the crop and do not collect in the gullet, where by pressing the windpipe they might stop the breathing.

"The object of soaking the beans is twofold. By it they are rendered larger, and so are more easily handled, and sufficient water is given at the same time as the food; this is a great advantage, for at the early age at which some pouters require feeding, it is difficult to induce them to drink."—p. 67.

It will be impossible for anyone to read these various extracts without perceiving that Mr. Tegetmeier is thoroughly master of the practical portion of his most interesting subject. If he has failed in propounding a perfectly unobjectionable theory on the nature of pigeon's milk, and in making the subject clear to all comprehensions, he is at least on an equality with the greatest of all our physiologists, John Hunter, so that nothing can be fairly said in the way of adverse criticism. Again, should it be objected to his explanation of the phenomenon of variation, that it is unsatisfactory and incomplete, I can only say that this is the case with *all* explanations hitherto published: we have as yet neither a solution of causes nor a classification of facts; and the time has yet to come when these great desiderata shall be supplied. Opposed as I always have been to the now prevalent doctrines of transmutation of species, I willingly accept the pigeon as a "test object." Mr. Darwin has done much the same; he has dwelt on the variations in pigeons with a fondness and an exhaustiveness that leave nothing to be desired; yet his splendid hypothesis has received no confirmation from the pigeon: within the historic period at least, man with all his skill, and with all his energy, has made no approach to the evolution of a species; no one has contended and no one will contend that the dovecot pigeon is an evolution from the stock dove or the stock dove from the dovecot pigeon, and no one has contended or ever will contend that a new species is in course of evolution, and no one has ever doubted that the dovecot pigeon is the rock pigeon; the two are identical. It is a mere evasion of the question to say that there has not been sufficient time. Pour water into a butt that has no bottom: the first hour of the operation carries with it the conviction that your labour is futile: if an hour produces no effect, you have no right to expect it from ages. Two parallel lines never meet. The pigeon under such management as Mr. Tegetmeier's is, I repeat, a capital "test object," and if we fail to evolve a species it is because the hypothesis, like the water-butt, will not hold water. No one, within my knowledge, has ever expressed a doubt that our "turbits" and "Jacobins," our "nuns" and our "swallows" would revert to "blue rocks," as soon as man ceased to tamper with their natural instincts.

With regard to the illustrations, my friend Weir has displayed his usual skill and knowledge of form and habit: his figures are better than photographs, because his educated pencil has photographed each in the best possible attitude, and under the best possible circumstances; but why represent each bird under the adverse conditions of a London fog, a "November particular." I have never seen a London fog represented with such fidelity; its aspect is absolutely fearful; and a friend looking over my shoulder at the lurid glare exclaimed, "What a fog! you might cut it with a knife!"

EDWARD NEWMAN.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 811).

JULY AND AUGUST.

Corn Crake.—These birds are now quite of common occurrence in this parish and neighbourhood during the spring and summer: I have remarked a gradual increase for the last four years. Previous to this period we seldom if ever either met with them or heard them. I have occasionally put them up, when shooting in September, either in turnips or most frequently in standing corn. On several occasions during the spring and summer of 1865 and 1866 I recognized the harsh monotonous call of the corn crake in some of the low meadows. This year, judging from the incessant "crek, crek" kept up during the whole of the short summer nights, not only in these meadow-lands, but in every part of the parish, we have had very considerable numbers located here.

Many other birds, as rooks, starlings, wood pigeons, and, above all others, sparrows, have of late years largely increased in numbers. This is apparent, even to the most careless observer. With regard to the rooks and starlings, I often wonder how they manage to pick up a living, so immense are the flocks which now visit our mainland during the later summer and autumn. Every spring fresh trees, often not very appropriate ones as regards safety, are taken up by small colonies of rooks, the spare population from the large overstocked rookeries.

Starling.—There is no bird of greater service to the farmer than the starling. One starling will in a single day devour an almost incredible quantity of noxious insects and grubs inimical to the labours of the agriculturist: I never open them without finding insects in their stomachs. Great complaints have this season been made of the injury done to the pea-crop by Aphides: in this neighbourhood I know of only one exception, a thirteen-acre field, containing a very fine and promising crop. This field was no sooner attacked by the fly than it became the resort of many thousands of starlings, and here they remained from early morning till evening, day by day, for several weeks, industriously picking off and devouring the plague of green flies which threatened to destroy the crop, a result at one time apparently inevitable. The usual cautious habits of the bird were for a time laid aside: when disturbed they arose with evident reluctance, alighting again almost directly. It would have been no easy task to have driven them from the field. The combined action of all these small birds did at last effect what no power or exertion of man could possibly have accomplished, namely, keeping under, and in great part destroying, these myriads of insects, which otherwise, in the short space of a few days, would have prevented all progress to maturity in the plants. I entirely attribute the preservation of this crop of peas to my little friends the starlings.

Sparrow.—I wish I could give the sparrow as good a character as the starling. Independent, however, of all we read about him, and the service he renders the farmer in destroying grubs and insects, and the solicitude expressed by the Acclimatisation Societies for his introduction into the Colonies, and the high price they are willing to pay for his importation, I still think that here at home in England he is not quite so honest as his admirers fancy; that, in fact, he may not unjustly be designated the enemy of mankind. My opinion of him is that he will never touch any other food when he can procure grain. The annual damage done by sparrows to the ripening corn crop throughout England must be enormous. A learned Frenchman, Rougier de la Bergerie, estimates that the sparrows of France consume every year ten million bushels of wheat. It is not alone what they eat, but the quantity knocked out from the ripening heads, till for acres together the crop has the appearance of having been thrashed with a flail. No amount of shooting, shouting or rattling is of the slightest avail to ward off the pertinacious attacks of the enemy. If driven from one spot they go to some other part of the field, and at last scarcely notice any attempts to drive them away. It has often been urged in defence of the sparrow that although, to a certain extent, they commit depredations on our corn crop, they make ample compensation by destroying those insects and their larvæ which otherwise would overrun our fields. In this district, however, where the farms and fields are extensive, and the homesteads isolated, ~~we never~~ see sparrows in the fields excepting at that season when the grain is there. When the corn is carried into the yards the sparrows follow, and hang about the premises till the succeeding crop calls them abroad again. During the dry season of 1864 my garden was infested with caterpillars and everything was more or less destroyed; the gooseberry and currant bushes stripped of their leaves. The plantations and shrubberies round this garden are the chosen haunts of hundreds of sparrows; and here, as they are never disturbed, they pass an idle, happy life. In return for this forbearance on my part I fondly trusted they would speedily rid me of my enemies, the caterpillars; but no,—

> "O wretched set of sparrows, one and all,—"

although they perched and chattered by hundreds in the trees almost overhanging my currant-bushes, they never to my knowledge, and I was constantly on the look out, attempted either to clear fruit-trees or garden from the destroyers. Much has of late years been both written and spoken in praise of the useful and honest sparrow. Like many another popular cry it may be overdone. He has his good points, and he has his faults, and not small ones either.

Brownheaded Gull.—During fine weather if these gulls are noisy, assemble in large flocks, fly round in circles, rising by a spiral flight, column-like, often to an immense height, it is an unfailing indication of rain within four-and-twenty hours. To-day (September 9th) I counted more than fifty of these gulls hawking, after the manner of swallows, for the crane-fly; myriads of these awkward and ungainly insects were drifting, impelled by a steady S.W. wind, over the marshes.

Ringed Dotterel.—Observed a small flock of six on some fallow land on the 27th of July, the pioneers of the autumn flocks. Hundreds of these little fellows made their appearance in the first week in August. These flocks contained an unusual number of dunlins.

Snipe.—First seen on the 22nd of July. I have now for some years put up snipe, the first arrivals of the season, near the same place, the side of a reed-covered drain. It is curious we never find them in this likely-looking drain during any other month in the year.

Golden Plover.—August 3rd. Put up a single golden plover, black-breasted, in the marsh to-day.

Linnet.—August 3rd. Have already congregated in small flocks.

Fern Owl.—The fern owl is a rare bird in North Lincolnshire; I never heard it. The rector of a neighbouring parish informs me that he heard one calling, at eleven o'clock at night, on the 19th of July, in some wood lands near his house. One of these birds was shot on our "fitties" by a Grimsby "gunner" during the last week in November, 1864.

Shieldrake.—Have on several occasions observed a pair or two of this beautiful species flying about the flats during the summer months. Some years since several pairs bred in the Humber district. I have only heard of one pair doing so this season, in private grounds, to which circumstance they doubtless owe their safety.

Swift.—Last seen on the 6th of September.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
September 10, 1867.

Occurrence of Sylvia aquatica for the Second Time, so far as is known, in England. By J. E. HARTING, Esq., F.L.S.

THE occurrence of Sylvia aquatica in England was for the first time made known by Professor Newton, who, at a Meeting of the Zoological Society in May, 1866, exhibited a specimen from the collection of Mr. Borrer, of Cowfold, Sussex, which had been obtained near Brighton in October, 1853. I was unfortunately prevented from attending this Meeting, but in November last, while on a visit to Mr. Borrer, I had ample opportunity of examining this specimen.

I was at once struck with its similarity to a bird in my own collection, which I had received from the neighbourhood of Loughborough two years previously, and which I had put aside to be named, not being acquainted with the species.

On my return home I carefully re-examined this specimen and compared it with the plate in Dr. Bree's 'Birds of Europe,' and felt little doubt but that it was S. aquatica. To be sure, however, that I was not mistaken, I sent the bird for examination to the Rev. H. B. Tristram, who is so well acquainted with the Avifauna of Europe.

To my note which accompanied it, his reply was as follows:—"There is no doubt about your Salicaria aquatica. It is not in full plumage, and therefore may be a bird of the year. The mature bird in breeding plumage has not the spots on the breast and flanks. There is no difference between the sexes."

The specific characters of this bird, as pointed out by Dr. Bree, are as follows:—"A large band of yellowish white or yellow over the eyes; on the head two large longitudinal black bands separated by a reddish yellow band; the under tail-coverts and the rump marked with oblong blackish spots; tarsi flesh-colour."

To the history of this species which may be found in the work just referred to (vol. ii., p. 80) may be added the following interesting note from Mr. Tristram:—"The nest of S. aquatica, which I have several times taken in Africa, is rather like that of S. luscinoides, of one material throughout, not suspended like the reed warbler's, but placed in the fork or leaf-joint of a big reed or cane in the centre of a swamp. The nest is small, lined with horse-hair, and interlaced with the stem."

It only remains for me to add that the subject of this memoir was obtained in the neighbourhood of Loughborough, Leicestershire, during the summer of 1864, and was forwarded to me by a friend under the impression that it was a grasshopper warbler.

When we consider that S. aquatica is known to breed on the opposite shores of Holland, and is found in the marshes about Lille and Dieppe, we are only surprised that it is not a more frequent visitor to Great Britain than it appears to be. On the other hand, its general resemblance in size and colour to other well-known species, when seen at a little distance, would naturally cause it to be overlooked.

J. E. HARTING.

Kingsbury, Middlesex.
August, 1867.

Nesting of the Peregrine in Yorkshire.—It may interest some Yorkshire ornithologists to know that the peregrine has nested this year near Flamborough. Some egg-climbers that I fell in with, during a walking tour on the east coast in June, informed me that two nests had been found, one of which contained two young ones. When I spoke doubtfully, and suggested that it might be some other species, one of the men described it with some emphasis as "the hunting hawk with yellow legs." One or two silver-eyed guillemots had been shot just previous to my visit. Jackdaws eat the guillemots' eggs: for this crime the egg-gatherers pull the jackdaw's nests, and kill the old ones if they can.—*George Roberts; Lofthouse, near Wakefield.*

Hobby in Kent.—On the 31st of August I revisited the wood where I saw the three hobbies together last year, and again saw two if not three there, certainly two together. If as I infer they breed there, the young birds must disperse themselves over the country, for we never see more than two or three. I was much pleased, on the 6th of September, to meet with one close to Cobham, for the above-mentioned wood is in quite a different district and on a different soil, quite isolated from other woods. This hobby came over my head as I was returning from shooting. In the excitement of the moment I fired at him, but fortunately, owing to the height he was at, did not hurt him. On returning to the spot next day I found him as often as I liked, for he is by no means a timid hawk, and spends most of his time in the air looking for prey, flying with outspread wings in graceful swoops. His swift-like wings and short tail distinguish him from other small hawks. I saw him hanging almost motionless in the face of the wind, rather like a kestrel, scarcely moving the wings. When the sun shines on him he appears of a bright bronze colour. The head keeper had previously seen him at the same place, a wooded eminence overlooking some rough long grass.—*Clifton; Cobham Hall, Gravesend, September* 7, 1867.

Hobby near Norwich.—On the 26th of June last a beautiful mature female hobby was killed at Shotterham, about six miles from Norwich: it measured thirteen inches and a half total length, and thirty-one inches in the expanse of wings to extreme tip of each. The stomach contained the remains of a young sparrow.—*T. E. Gunn; 21, Regent Street, Norwich.*

Varieties of Kestrel's Eggs.—A gentleman living in this city had in his possession a tame kestrel which had laid three eggs this season: the first is of the ordinary type; the second had the smaller end, and extending over half the surface, of a pale reddish tinge, the remaining half being several shades darker; of the third, half the surface from the smaller end was pure white, the other half as in ordinary eggs of the species. The bird from some accident has since died, and has been preserved with the eggs in the same case.—*Id.*

Common Buzzard at Looe.—On Wednesday last a fine specimen of the common buzzard was trapped at Mowne, near Looe. The gamekeeper who had set the trap happened to be near it when the bird was caught, and immediately released it without the least injury, but instead of keeping it alive he unfortunately killed it, and sent it to me. The plumage is excellent, being of the dark variety, and beautifully mottled. *Stephen Clogg; Looe, September* 12, 1867.

Buzzards in Kent.—About the middle of this month I saw in the distance what I considered to be a buzzard, from the size of its wings, but as it was merely flying along, and not soaring, I was not quite sure. On my mentioning this to the keepers last night they informed me that a pair of buzzards had been seen near a certain wood for the last two or three days. Accordingly this morning I set out for the locality named, armed with a pair of opera-glasses, and very soon saw an unmistakable buzzard soaring in circles over a hop-garden. I at once saw that the bird I had previously seen was exactly like this one. Buzzards appear to occur especially in August, for on the 14th of August, last year, one was seen soaring at an immense height in the air. A few years ago these visits were very frequent, and five were trapped in a season; now, however, they are protected, owing to their scarcity as a British bird. I may add that the keepers here, unlike those I read of in the 'Zoologist,' know every hawk by its proper name, and are therefore able to give much useful information. The head keeper tells me he saw a hobby here this summer.—*Clifton; Cobham Hall, August* 23, 1867.

Owls breeding in Confinement.—Having caught two large white owls last year, I placed them in a large wicker cage, where they have afforded much amusement to the patients. They proved to be male and female; and, having observed the former to be very attentive to the latter in the spring, I erected a large wooden box on one side of the cage. A nest was soon constructed, two eggs were laid, and a fortnight ago two little downy customers gave intimation of their presence. The old birds are indefatigable in feeding the owlets, and we well supply them with rats, mice and birds. Have any of your readers ever met with a like success? I have never heard of owls breeding in confinement before, and so I place this fact on record.—*Edgar Sheppard; Colney Hatch.—From the 'Field.'*

Yorkshire Haunts of the Pied Flycatcher.—When I was at Castle Howard, the domain of the Earl of Carlisle, I noticed the pied flycatcher. It was occupying the lower branches of an elm tree, frequently flying out on to the grass and returning. Once it flew away to some distance, but shortly returned to the same tree. My estimable correspondent Mr. A. F. Wordsworth, of Scarborough, informs me that it occurs pretty regularly near Scarborough.—*George Roberts.*

Young Lark feeding other young ones.—Last June, in Mr. Fisher's shop in Eton, I saw eight or nine young larks in a cage: some were about a fortnight older than the others, and one of the elder ones was always seen to feed all his small brothers and sisters in turn; and he never fed them out of their regular order, at least so Mr. Fisher informed me. I myself one day saw this bird feeding some of the others.—*Alexander Clark-Kennedy.*

Late Yellowhammer's Nest.—On the 26th of August I disturbed a yellowhammer from her nest: on looking into the nest I found three eggs in it, looking perfectly fresh; on my return the bird again flew from the nest, so there can be no doubt she was brooding over the eggs. On passing again in a day or two I found the nest had been destroyed. Is not this very late for birds of most kinds to be breeding?—*Stephen Clogg.*

Hawfinch at Selborne.—A pair of hawfinches flew across my lawn while we were at breakfast this morning, and settled in a fine Abies Douglassii, where I had the opportunity of watching one of them for some time.—*Thomas Bell; The Wakes, Selborne, Alton, Hants, September* 8, 1867.

Rosecoloured Pastor in Wales.—We have just found in one of our bed-rooms a very fair specimen of the rosecoloured pastor (*Pastor roseus*), a male bird, and very thin. Will you kindly inform me if these birds are often found in this country?—*Henry Platt; Bryn-y-Neuadd, near Bangor.* [The rosecoloured pastor is an extremely rare bird in this country, and we have no clew to the cause or periods of its visits.—*Ed.*]—*From the 'Field.'*

Great Spotted Woodpecker caught in a Trap.—On the 23rd of July last a great spotted woodpecker was caught in a trap which is constantly kept set for hawks, and came into my possession: it was an old female deep in moult and of but little value. Some time last summer another specimen of the great spotted woodpecker was caught, and, as it was uninjured, it was put into a cage with the intention of preserving it alive, but as it was only supplied with bread soaked in milk you will easily imagine its fate, that of starvation: I did not hear of its capture for more than a week after it was dead.—*Stephen Clogg.*

Variation in the Plumage of the Green Woodpecker.—A friend brought me an adult female specimen of the green woodpecker, which he had shot on the 6th of May near Hethersett. The tips of the wings extended about two inches down each feather, and nearly the whole of the tail-feathers were of a rusty brown colour. I have previously noticed the same variation in the plumage of this species in the pages of the 'Zoologist.'—*T. E. Gunn.*

Variety of the Silver Pheasant.—On the 3rd of April a singular variety of the silver pheasant, an adult male, was sent me for preservation: it had been killed a short time previously in this neighbourhood, having been put up from the water's edge in company with some wild fowl, and the gunner, thinking it some unusual bird, shot it. Its whole plumage is of a dark brownish slate, with a few of the pencilled feathers of the ordinary type scattered here and there. In dissecting it, I found the heart, liver and intestines thoroughly diseased: this would of course account for its abnormal change of garb. In the stomach of the bird I found some barley, vegetable fibres, and a rather curious and indigestible morsel, *viz.* a felt gun-wadding, which was doubled.—*Id.*

Whitewinged Partridge.—On the 6th of September I shot a partridge with white wings and otherwise pied—a very rare variety in this district.—*Clifton; Cobham Hall, Gravesend, September* 7, 1867.

Hen swallowing a Slow-worm.—In the beginning of last month a young Minorca hen belonging to my uncle, residing near Exeter, was killed, and in its crop was found a slow-worm, about eleven inches in length, but very little decomposed. Is this a common occurrence?—*J. L. Langdon Fulford; Combe Keynes, Wareham.*

[I have never known of a similar occurrence.—*E. Newman.*]

Greenshank and Wood Sandpiper near Aldeburgh.—Three specimens of the greenshank were shot on the 11th of September, on the River Alde, near Aldeburgh, Suffolk; Mr. N. F. Hele procured one, and I got two of them: the gizzards of two were empty, but that of the third bird contained small seeds and legs and wings of some species of gnat. On the 13th instant I saw a pair flying over Thorpe Mere. I heard the note of the wood sandpiper, on several occasions last week, on Aldeburgh town mere. On the 11th, I saw two little stints feeding with a flock of dunlins on Thorpe Mere: I heard a stint's note on the 13th of September.—*A. Clark-Kennedy.*

Curlew Sandpiper near Aldeburgh, Suffolk.—On the 11th of September, Mr. N. F. Hele, of Aldeburgh, shot a curlew sandpiper on the Thorpe Mere, with a lovely red breast, it was with a flock of dunlins when shot. On the morning of the 13th of September, Mr. Paget shot another specimen of this bird: this bird had a white breast. I saw it feeding with a small flock of dunlins when it was killed.—*Id.*

Curlew Sandpiper, &c., at Grangemouth.—At the coast at Grangemouth yesterday (September 14th) my friend Mr. Belfrage and I killed two curlew sandpipers and one godwit, besides knots, ring plovers and dunlins. The number of waders on the spit of land near Avon-mouth was something wonderful, and I am sure that there must have been some other strangers amongst them. We saw several other godwits and curlew sandpipers distinctly.—*John A. Harvie Brown; Dunipace House, Falkirk.*

Great Northern Diver at Looe.—I was surprised last week by the appearance of a great northern diver in our bay: I saw it three or four days successively, although the season is earlier by two or more months than we usually first see them. On examining it through a good glass I was unable to detect the least appearance of summer plumage, yet I think it must be an old bird, as I cannot fancy a young one would be likely to find its way here so soon after the breeding season.—*Stephen Clogg.*

Puffin on the Norfolk coast.—Since my previous notice of the occurrence of the puffin on this coast, another specimen has been obtained; a male was shot during the latter part of June last on the Cromer beach, within a few miles of the former occurrence.—*T. E. Gunn.*

Occurrence of the Whitewinged Black Tern in Norfolk.—I had lately the great good fortune to secure for my collection a very beautiful adult male of this rare species, which had been shot on Hickling Broad on the 27th of June. The only other example known to have visited our coast was shot at Horsey, an adjoining broad to Hickling, on the 17th of May, 1853, and is now in the possession of Mr. Robert Rising: this bird was killed out of a flock of the common black tern; and my own, I have little doubt, arrived in like company, as both broads and meres this last spring were visited by a somewhat unusual number of black terns, now no longer nesting in Norfolk.—*H. Stevenson; Norwich, September* 17, 1867.

The Birds of Scandinavia.—A short time since I purchased at Messrs. Stevens' sale-room some works, formerly the property of the lamented correspondent of 'The Field,' Mr. H. W. Wheelwright, better remembered, possibly, by his *nom de plume* of "The Old Bushman." Amongst the books were copies of a pamphlet compiled by himself, and printed at Carlstad, Sweden. It is a comparative list of the birds of Scandinavia and Great Britain. It gives the Latin, the Swedish and the English name of all the species found in the two countries, and in a very succinct manner states whether they are permanent residents, occasional visitants or regular migrants, giving their summer localities and breeding-stations. To English visitors to the country of Sweden this pamphlet of eighteen pages, giving as it does the Swedish name of every species, must be very useful. My object in writing this note is to offer the copies, as far as they will go, to the readers of 'The Field.' I shall be willing to post one to any address on receipt of six postage-stamps, to cover cost and postage. If there should be more demand than I have copies to part with, I shall of course return the stamps to the latest applicants. I think that there may be some who, like myself, would desire to possess even so slight a souvenir of our lamented friend.—*W. B. Tegetmeier; Muswell Hill, London, N.—From the 'Field.'*

Curious Position of Nests.—This season I found a chiffchaff's nest in a rather unusual situation: it was placed some four feet from the ground in the ivy which clings on to the Albert Bridge, Windsor: it had three eggs in it. I found a willow wren's nest (also close to the River Thames) in a holly bush, about three feet from the ground. While staying at Brighton, at Easter, Mr. Pratt told me that he knew of a robin's nest which was being built in an old Wellington boot. I discovered a nightingale's nest, this season, some way from the ground in a laurel-bush. Out of the many reed-warbler's nests which I found this summer in the vicinity of Windsor only one was within five feet of the ground; most of these nests were six and seven feet above the ground, and at some distance from water: they were all built in lilac-bushes.

Mr. Harting, in his 'Birds of Middlesex,' seems to think there are different species of the reed-warbler; I believe he is right.—*A. Clark-Kennedy.*

The Lizards of Labuan. By Dr. COLLINGWOOD.

THE commonest of the lizards of this island, and indeed of the whole region, is the little animal called chick-chack (*Ptyodactylus gecko*), so named from the chirping noise it makes from time to time, and which might at first be mistaken for the voice of a bird. It is perfectly harmless, and often very familiar. They live in considerable numbers within doors, concealing themselves upon the roofs, and among the *attaps*, or palm-coverings, or crawling about upon the walls and ceilings. I have counted as many as two dozen overhead while I have been at dinner in a good-sized room, some as long as my hand, and usually pale-coloured. They vary, however, somewhat in colour, according to food and locality. I have been informed by credible friends of instances in which they would habitually come down upon the table and take food offered to them, and it is equally certain that they occasionally come down involuntarily, losing their precarious footing overhead while in chase of an insect, in which case they fall with a thump upon the floor or table, an accident which usually results in the loss of their tails, which break off with the shock or the fright, and it is by no means unusual to see them with their short stumpy caudal appendages in process of reproduction. Such an occurrence happening in the night I have found rather startling. If a moth or a butterfly flutters about near the ceiling, the chick-chacks are all upon the alert, running at it as it passes near them, and although the reptile may succeed in catching it, the insect is often too unwieldy for them, and they have considerable difficulty in securing it. They clear the house of mosquitoes and flies, however, and are never molested, but, on the other hand, always encouraged. A singular circumstance occurred to the colonial surgeon, who related it to me: he was lying awake in bed when a chick-chack fell from the ceiling upon the top of his mosquito-curtain; at the moment of touching it, the lizard became brilliantly luminous, illuminating the objects in the neighbourhood, much to the astonishment of the doctor, who had never before witnessed such an occurrence.

Another lizard of a larger size than the last is the barking lizard, which lives in trees and also about houses, from time to time betraying its whereabouts by a sound resembling a short growl, followed by a short sharp bark, not unlike that of a puppy at play. When I first heard it in a tree, I looked up for a monkey, but on many subsequent occasions, it appeared very much like the barking of a small dog. They are very difficult to detect, however, cunningly concealing themselves, and although I have watched for one barking a few yards above my head in a tree, I have looked in vain for a considerable time. They are very fond of coming into houses, and are considered by the Malays as reptiles of good omen. They feed upon insects and moths, being particularly partial to Sphingidæ.

The iguana is a larger species, which reaches a length of seven feet. Although in other respects harmless it does considerable mischief among domestic fowls, frequenting the neighbourhood of houses for the purpose of robbing the hen-roosts. For that reason, they are destroyed, and moreover by some they are considered excellent eating. While drying some marine animals in the sun one morning, an iguana appeared upon the scene, walking on tiptoe across the grass, and lifting its head as if scenting something. On my driving it away it returned again three times to the spot, although the bait was not what I should have imagined to be very inviting. I was unwilling to shoot it, but two or three days after I fear it met with such a fate in neighbouring grounds, where it was found near the hen-roost. It was about four feet long, I believe these animals, however, do sometimes subsist upon marine animals, which they pick up on the beach. I have more than once observed them skulking among the roots of the trees close to the margin of the shore; and on one occasion, I passed and repassed the spot several times on purpose to observe it. Each time I passed it retreated into the jungle, but was always at its post when I came back. On one occasion I disturbed a large iguana in such a situation that in order to escape, it had to run some distance across an open space in my full view; and it did run tolerably quickly, but in a most ludicrous manner: the short and peculiarly situated fore legs had an awkward waddling motion, while the hind legs, seeming less encumbered, ran more quickly, and threatened to overtake the head, while the long tail followed behind, as if it scarcely belonged to it, swaying from one side to the other according to the direction the animal took. With all this, however, I should scarcely have caught it in a flat race.

Chameleons of more than one species exist in Labuan. The natives have a great prejudice against them, and will not touch them, believing them to be deadly poisonous.

Cuthbert Collingwood.

Variety of the Perch.—While fishing with trimmers in Virginia Water, near Windsor, last July, we caught a perch without any of the usual transverse lines perceptible. It was a large fish, but in bad condition: it weighed just 2lbs. The same absence of the transverse bands or lines in this specimen, was noticed in Mr. Gunn's fish, mentioned in the 'Zoologist' (S. S. 513).—*A. Clark-Kennedy.*

Ianthina fragilis in Dingle Bay.—On the 27th of August I found on the shore at Dingle Bay several specimens of Ianthina fragilis; they were quite alive, and had the peculiar apparatus of bubbles attached to them. I picked up ten beautiful specimens in a distance of about a mile. A great many more were destroyed by the oystercatchers, which were on the look out for them. The shore was strewed with the remains of Velella (lutea?): several of these were almost perfect and were covered with the beautiful purple jelly-like covering. There had been a fresh breeze from the S.W., but no gale of wind.—*E. C. Buxton; Daresbury Hall, Warrington, August* 29, 1867.

Mackerel in the Boulogne Aquarium.—Under this title I inserted what appeared to me a most interesting extract from the 'Field' newspaper (S. S. 917). Its publication in that excellent journal seems to have excited the animosity of Mr. Lloyd, the curator of the Aquarium at Hamburgh, who wrote a captious and somewhat offensive commentary on Mr. Smith's paper, which commentary also appeared in the 'Field.' Mr. Lloyd now asks me to reprint this commentary, but as it gives no additional information I prefer extracting from the 'Field' of the 21st of September, Mr. Smith's final reply to Mr. Lloyd's strictures, inasmuch as this reply will itself show to what passages in Mr. Smith's prior communication Mr. Lloyd takes exception. The subject of salt-water aquariums has for many years been one of unceasing interest to myself, and this must be my apology, if one be needed, for again introducing it to my readers.—*E. Newman.*

Keeping Mackerel in Aquaria.—In writing to the 'Field' an account of the introduction of mackerel into the aquarium of Boulogne, and of their conservation therein, I did not think it necessary to describe at length the aquarium itself, or even to specify the nature of those defects in its structure of which I hinted the existence. The observation of my friend Mr. W. Alford Lloyd, however, in the 'Field' of August 31st, that the aquarium of this town "is not what is ordinarily termed an aquarium, but a marine pond having sea-water pumped into it by a steam engine," might mislead many persons, not so well instructed in these matters as that gentleman, into supposing that the arrangements thus described possess some advantages over the arrangements ordinarily adopted for keeping marine animals in inland situations. I therefore beg to state that the sole advantage resulting to the Boulogne aquarium from its proximity to the sea consists in the facility thus afforded for obtaining animals either for exhibition or for food; and that it is not only possible, but easy, to construct aquaria in inland towns which would be capable of maintaining marine fishes for longer periods than those during which the same creatures could at present be kept alive in the aquarium above named. I will also—to save interrogation on this point—indicate the serious defects which exist in the aquarium of this town. The first and greatest defect consists in the fact that it *is* "a kind of open-air pond;" and I call this exposure to the open air a defect because it is not possible to regulate the temperature of the water so exposed, because it is not possible to regulate the light, and because it permits the importation into the aquaria of dust, of leaves of trees, and of cuttings of grass, &c. The second defect consists in the uncertain and intermittent nature of the supply of sea-water. The third serious defect is that the sea-water pumped into the aquarium is taken from the swimming-bath of the "établissement," and this bath is filled direct from the port. As the town of Boulogne is drained into the harbour, it is just possible that the water may not at times be capable of supplying one of the well-known requirements of most fishes, leaving "pelagic" fishes out of the question. If there are any of the conditions above-mentioned which Mr. Lloyd would be desirous of securing in the construction of an aquarium, his views have been singularly modified since the time when I had the pleasure of being in daily communication with him. The species of mackerel to which I alluded in my letter to the 'Field' was Scomber scomber; but there were at the same time living in company with them eleven full-grown specimens of Scomber pneumatica, besides some hundred and fifty other fishes of various kinds, and ranging from six inches to upwards of forty inches in length, but which, from their well-known greater powers of endurance, I did not think it worth while to speak of. Mr. Lloyd takes exception to my statement with respect to the possibility of keeping Scomber scomber permanently, and also to what I have said to him privately in reference to the facility with which Hippocampus brevirostris may be kept in confinement; but, whilst disputing that which I asserted broadly with regard to a species, he wishes to saddle me with a similar responsibility in the case of every individual of that species. This is slightly unreasonable. I may be "too hasty and positive" in this matter, and those who have had more practice may be more cautious in their assertions. I am willing to admit that they may have sufficient reasons for being so. I may observe that my "practice" began in July, 1856, and that I never penned a line for publication until July in 1867; and for the reason that, although I have long been in a position to write of what I *believed* could be done, I preferred waiting until I could write of what I *knew* could be done. If, from the hundreds of instances in which Mr. Lloyd has failed to keep his animals continuously, he will kindly select and quote a few cases in which fishes have died owing to the absence of some known condition which cannot be supplied in an aquarium, something will be established. If I can have given me by anyone a single sufficient reason why any ordinary fish which can live in aquaria for a month or two months (performing in a satisfactory manner during that period all the functions of life) cannot be so kept for a longer time, or for "the term of its natural life," then I shall very readily own that I have been "far too hasty and positive." Let me add that I shall be sorry to a corresponding degree for having been so. Until this can be done, I must be excused for preferring to draw my conclusions from those things which have been effected by Mr. Lloyd, by myself, and by many other persons, to having my views modified by the failures from unexplained causes which any person or any number of persons may have experienced. The implication that Mr. Lloyd wishes to attach to my statement, that certain animals can be kept indefinitely in properly constructed aquaria, is an entirely unwarranted one. It might as reasonably be assumed that the promise that man shall live "three score and ten years" implies that every man shall attain that age. I have not previously made any allusion to "the lower marine animals," and I do not pretend to know all the conditions upon which depend their permanent well-being either in captivity or in freedom; but Mr. Lloyd, writing so long ago as the year 1858, was able to say that those conditions were "few and simple;" and in this I so far agree with him as to state my belief that many of these creatures may in captivity attain a greater age than they would probably ever arrive at in a state of nature. I do not lay claim to any exclusive knowledge; but that which I have done has been to seek most of the animals I endeavoured to keep in their natural *habitats*, myself collecting and carrying them home; and I have ever thus gained important hints towards success. The "money expression" of the matter of mackerel-keeping in London or Paris is not practicable in the form in which Mr. Lloyd wishes me to express it. It is not probable that anyone will incur an expense so disproportioned to the result which could by any possibility be expected as that which would be obviously necessary in the case supposed by Mr. Lloyd. But, should it at any time be in contemplation to construct a public aquarium of adequate size, and should I happen to be consulted in the matter, I will promise that it shall (if my advice be taken) contain suitable accommodation for mackerel; and that I shall be prepared to take those animals to either London or Paris. For Mr. Lloyd's satisfaction I may say that, as the means which I should have to organize for doing this would also serve to supply economically all the requirements of the aquarium, mackerel could then be supplied at as small a cost, and kept at as cheap a rate, as any other hungry fish of similar size and habits. I may say that in the early part of last week two of the mackerel were still living. The last of these disappeared on the night of the 29th of August, and the deaths of all three are attributed by the persons now in charge of the aquarium to predacious fishes of large size, which were confined in the same basin with them. This may or may not be the case, as there is no positive evidence to be obtained as to whether they were eaten after death or caught whilst living. This much, however, is certain, that during the past month they have been subjected to such ill-treatment as would suffice to cause the ultimate (probably the immediate) death of many fishes which it is known have been kept in aquaria during periods of many years. I have this week been told that Hippocampus brevirostris has propagated abundantly in the aquarium of Arcachon; my informant adds that the male carries his progeny about upon his tail.—*John Smith, late Keeper of Boulogne Aquarium; Boulogne-sur-Mer, September* 3, 1867.

*The Oyster Fisheries of New South Wales.**—The oysters of New South Wales may, for all practical purposes, be divided into two kinds: the mud-oyster, which resembles the English oyster, is found in beds in comparatively still water, generally unattached, or in clusters of two or three, having a soft shell, easily separated and growing to a large size; specimens have often been found measuring twelve inches by eight, with a depth of six inches: these oysters require great care to keep them alive when once taken out of the water; some of them will not survive for one day: they are not in demand, though there are extensive beds of them at several places along the coast, as at Pitt Water, Brisbane Water, Botany Bay, Port Aiken, Wogonga, Jervis Bay, Sydney Harbour and Panbula. The Western Port, Port Albert and Port Phillip oysters in Victoria, and the Spring Bay oysters in Tasmania, are all of this species. The other kind of oyster, whether named rock, cluster, drift, bank, whelk, channel, mangrove, half-tide, or bay oysters, are of one species, and all have in common a very hard shell; they will live out of the water from three to six weeks and improve. The beds or grounds are all situated in salt-water creeks extending inland, and communicating with rivers, or in estuaries, where there is a strong tide-way. They are mostly attached to each other in bunches, the roots of which are firmly fixed in the bed, some adhering to rocks, boulders, mangrove stumps, snags and whelks, but are never found unattached: the oysters of this class will require a very different system of protection to the former. The spawning season differs in each river; in some, each bed has a different time; in many places the bank and deep-water oysters differ as much as six months in their time of spawning. Some oysters have been known to spawn only once in three years, while others again will spawn two or three times in a year; but in all cases they are very much influenced by the weather, for, when any are ready to spawn, a cold, rainy south-east wind setting in will throw them back for a month. The greater portion of the oyster-spawn or spat that escapes destruction will be found attached to the large oysters, and when about two months old has the appearance of a fish-scale, and has but one perfect shell, the other being only partially developed, and cannot be removed from its place of attachment without destroying it. For these reasons I consider that a general close season, or three or four months in the year, would be all but useless, as no particular three or four months in the year will cover the spawning season of half of the oysters, and it would be very little protection to those it did cover, as directly after the close season the oysters may be taken, and from it being impossible to separate the young oysters their destruction will be inevitable when the old ones are removed. The proposed close time is also not a general spawning season, but occurs when most of the oysters are in the finest condition—the Camden Haven, Manning and George's River (deep-water oysters), and the Port Stephen bank-oysters spawning in May. One cause of the deterioration of certain oyster-beds is that, after the regular oyster-gatherers have discontinued working, and left them to recover, settlers and others are continually dredging, thus destroying the young oysters. Another great cause of destruction is the taking of oysters and shells to burn into lime; the shell-dredgers on the Hunter, for example, go to work on any part of the oyster-grounds, taking up oysters and shell indiscriminately, thus not only destroying the oysters but the oyster-grounds as well, removing the whole of the bed, which, in many instances, is six feet thick of solid shell, leaving nothing to which the spat can attach itself; and thus thousands of bushels of oysters are destroyed, and the beds are gradually reduced in size. From Broken Bay there are four or five vessels constantly employed in bringing live shell—that is, young oysters—to Sydney for the lime-burners. They bring about 65,000 bushels annually, in addition to which about half that quantity is burnt in the river, making a total of 97,500 bushels of young oysters destroyed every year, in that place only; and a similar destruction is taking place over nearly all the oyster-grounds. Oyster-beds are often destroyed by freshes in the rivers, covering them with a deposit of silt; and a shift in the channel of a river will sometimes be another cause of their destruction by diverting their food. Oyster-beds are considerably improved by being properly worked, as it extends and enlarges them, and also gives the young oysters room to grow and spread, and the oysters are always of better quality and larger after the ground has been once cleared. I consider the most effectual way of protecting the oyster-beds, and to ensure an efficient and never-failing supply, would be to prohibit the burning of oysters into lime, to work one-third of the oyster-beds at a time, changing once every year, so that each oyster-bed will have two years' rest, which would be sufficient time to replenish themselves, and one-third of the beds properly worked would yield a supply of excellent oysters, very far in excess of the present demand. It would also be advisable to place some restriction on the taking of oysters, either by issuing licences, or by leasing the beds for a term of years. There is much injury sustained, and thousands of bushels of oysters thrown away, from the want of some such regulation. If a new oyster-bed is opened, there is an immediate rush to it, the best of the oysters are forced into the market, the supply for a time far exceeds the demand, and a large proportion of those sent up find their way to the lime-kilns. It would also be desirable if facilities could be given to persons desirous of forming artificial receiving and feeding beds for oysters, to be permitted, under certain regulations, to select suitable localities for their formation, to be legally secured to them. By the establishment of such places, a large quantity of oysters would be saved that are at present thrown away.

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* From a paper, by Mr. R. Emerson, read at a Meeting of the Acclimatization Society, on the 25th of June, 1867.

The natural oyster-beds of New South Wales are both numerous and extensive: I append the following list of some of them:—Tweed River: very fine oysters; never been worked. Richmond River: very fine oysters; never been worked. Clarence River: small oyster; very good and extensive beds. Camden Haven (recently opened): fine oysters; very large beds, reported able to fully supply the market for five or six years. Manning River: fine oyster-beds, worked out, but will recover in two years if left untouched during that time; has been worked out four times. Wallis Lake: extra fine oysters, but requires a rest. Port Stephens: numerous beds of large extent; has been worked continually for fifteen years, and is still in good working condition. Hunter River: most productive oyster-beds in the colony; oysters small, but very good; has been worked out five times, but always recovers with a two years' rest; is now in full work after an eighteen months' partial rest, and is supplying about one thousand bushels a-week, besides probably double that quantity destroyed by the shell-gatherers: I estimate the supply from the last working at 168,000 bushels. Lake Macquarrie: small extent. Broken Bay: oysters secondary quality, unlimited in quantity: all the creeks running into it full of them; has been in constant work for the last ten years, and is still sending an undiminished quantity to the market, and of an improved quality latterly. Sydney Harbour and Parramatta River: chiefly mud-oysters; in some parts worked out, and others died out, the oysters having perished on the beds; there are some young mud-oysters on the Parramatta River, but they are not sought after. Botany Bay: small oysters. George's River: very fine oysters; requires a rest. Port Aitken: small rock and mud-oysters, none coming to market. Shoalhaven: very good oysters, but indifferent keepers. Crookhaven: very good oysters; extensive beds. Jervis Bay: large beds, mud-oysters; none sent to market. Wogonga: small drift and large mud-oysters. Tuross River: good oysters. Clyde River: extensive beds of various kinds of oysters, very good when arrived at maturity; requires a two years' rest, after which it could supply 1500 bushels a-week for twelve months. Durass Lake: small extent; very fine oysters; wants a rest. Panbula: abundance of good oysters; not worked. Berramamagui: very fine oysters; large beds, not worked.

Polack Lake: large beds; never been worked. Nelson River: large beds; never been worked. Warego Lake: very extensive beds; never worked; been prospected, and the oysters found very good. Merimbula: good oysters; not many sent to market. Ulladulla: large oysters, and very good. Twofold Bay: small oysters, but in great quantity.

In conclusion, I may observe that at present there is no scarcity; but, on the contrary, a redundant supply of oysters. I estimate the annual supply to Sydney at 31,200 bags, equal to 109,200 bushels, which supply could be doubled if required. The oyster-fisheries find direct employment for at least 250 persons, seven small vessels, besides those brought by the steam-boats. Our yearly export of oysters, principally to Victoria, I estimate at 63,000 bushels, of the value of £13,500, and our home consumption at 46,200 bushels, valued at £16,500.

The Fate of Piebalds and Rare Birds.

By J. D. JEFFERY, Esq., F.R.C.S.

WE have in Worcester a little Book Society, and we take in no works but scientific periodicals, among which the 'Zoologist,' as a matter of course, has a place. I do not know that there is one among us who is a great collector of either animals, birds or insects, but we like to hear and know something about what is being done by others in Natural History. With this admission, it may be that the observations I am about to make will be considered of little account; on the other hand, it is possible that the remarks of those who, having a love of Nature, are obliged for the most part to become acquainted with her beauties and her "freaks" through the labours of others, may not be quite unworthy of notice.

My theme is the fate of piebalds and also of occasional visitors of the feathered race to the United Kingdom. I observe in almost every number of the 'Zoologist,' among the "facts and anecdotes," that information is given of the destruction of two or more varieties of animals or birds which have been met with by different enthusiastic collectors. Now I must confess that when I read these fatal communications I have a strong Darwinian wish that for "collectors" I could read "preservers," in the true and living sense of the word. I have an idea, in fact, that if the first specimens of varieties in colour which are met with, both in birds and quadrupeds, were carefully shielded from harm, "preserved" instead of "murdered,"—forgive the word,—that in course of time we might have a greater and, in one sense, more pleasing variety of our Fauna than we have at present.

My mind has been impressed with this belief from reading the numbers of the 'Zoologist' which have come before me since our Society has been formed, and I will now quote, from the September number for 1866, some observations which have served to strengthen the impression.

1. Three or four piebald varieties of rats are stated to have been killed. I fear rats must be destroyed when met with.

2. Three specimens of the gray variety of the common hare killed, and also one with a large patch of white on the forehead.

3. Rabbits, because they happened to have been white and chestnut. Why were they not left alone and allowed to multiply?

4. A red deer paid the penalty of death for being prettily marked. Would not a variety of the deer tribe be ornamental in our parks?

Next a gentleman writes that he had obtained a female blackbird with white feathers, and says, "I had to bide my time quietly until I could bag it for my collection." What a painful state of suspense he must have been in!

Then a stone curlew is reported to have been killed because it was rarely seen in the locality, not because it was wanted.

In the same number is a notice of the 'Dictionary of British Birds,' in which the frequent advent of the sand grouse to this country is mentioned, and the Editor remarks, "It would be very interesting if these birds were to breed on the English moors." I should say they might do so if collectors would give them a chance, and let them alone.

There are many birdstuffers in Worcester, and there is not one, I believe, who has not his white blackbird, or starling, or sparrow, or even white swallow in his window. A few years ago there was no collector's shop in which there was not a piebald pheasant or two; now one is scarcely thought worth stuffing: the fact being that a piebald pheasant is no longer a curiosity, in consequence of their having been placed, *de novo*, under protection, and so they have increased and are to be found about here adorning every preserve, and I often see them hung up in the shops for sale. What is the inference from this, as regards varieties of other birds or animals?

J. D. JEFFERY.

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